Figure 1A

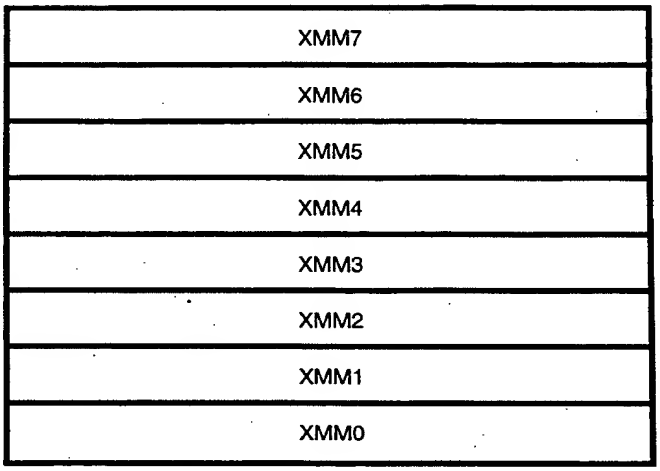


Figure 1B

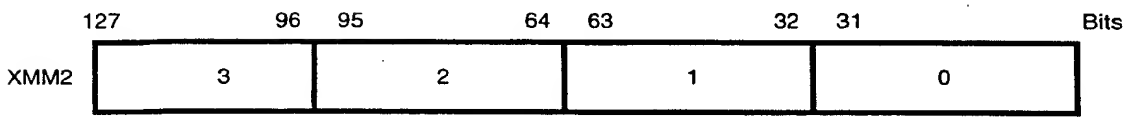


Figure 1C

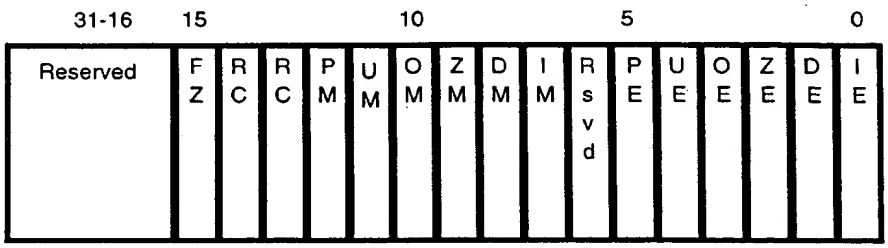


Figure 1D

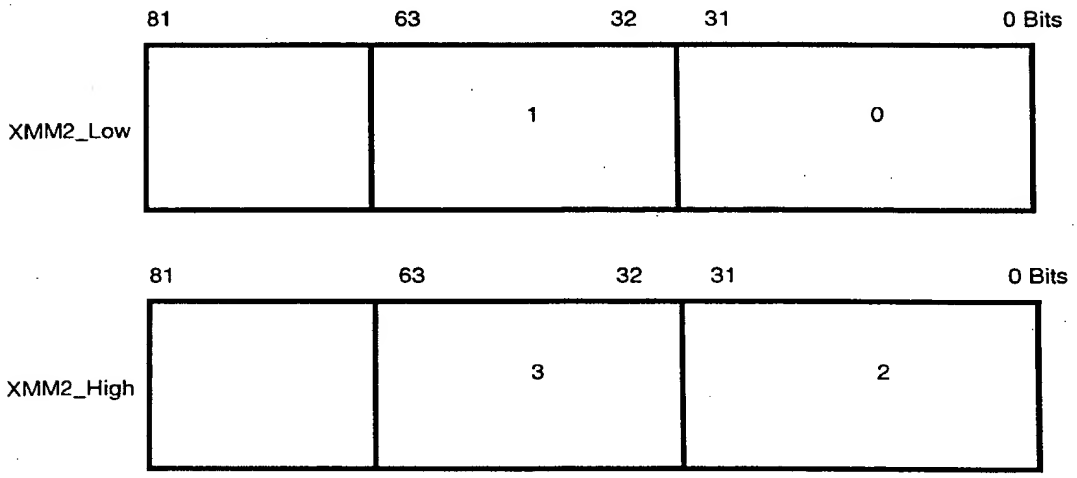
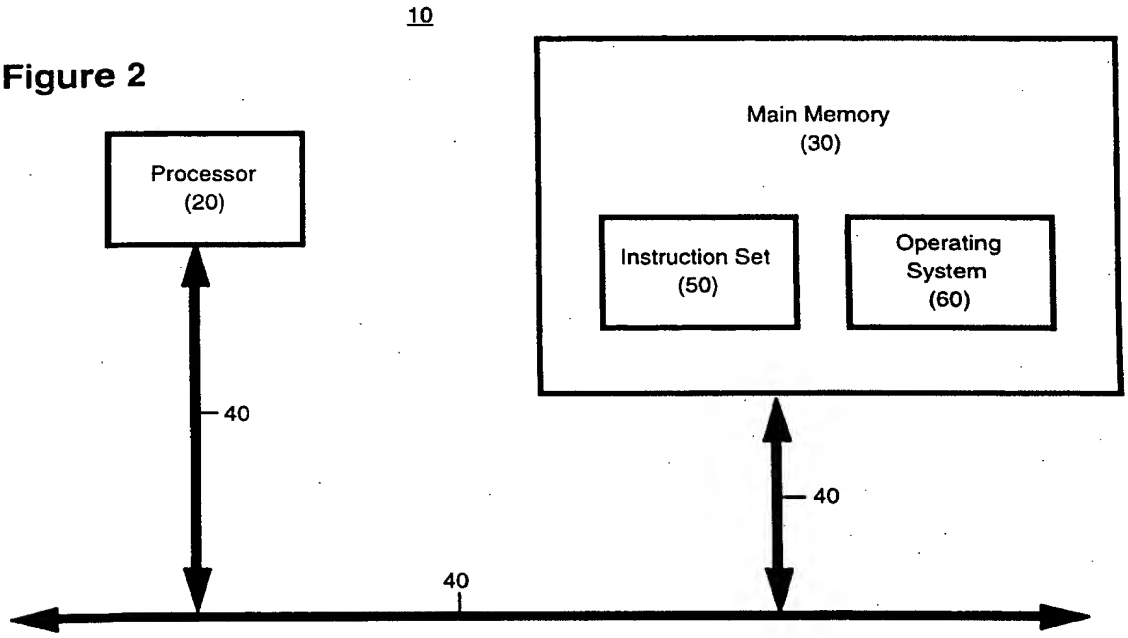


Figure 2


10
Main Memory
(30)
Processor
(20)
Instruction Set
(50)
Operating
System
(60)
40
40
40

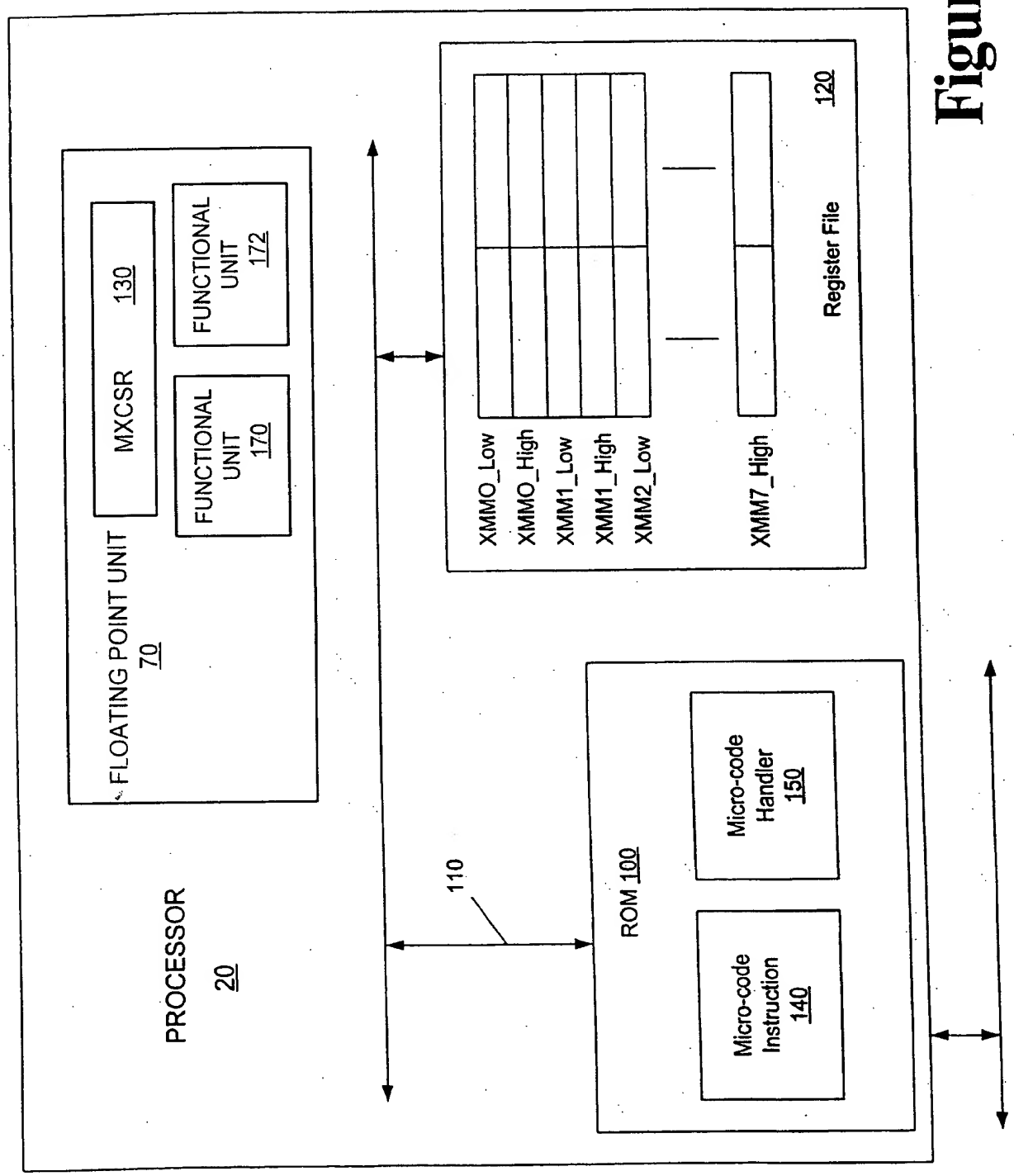
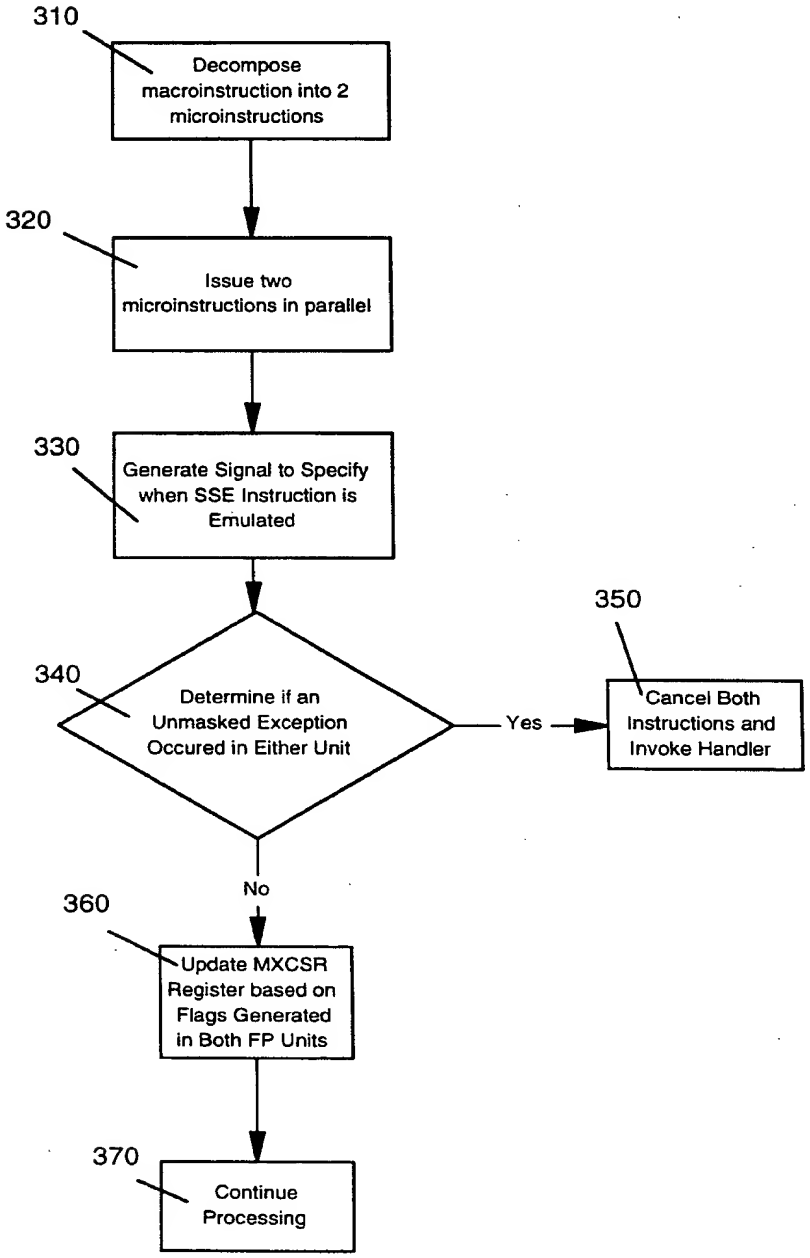

PROCESSOR
20
FLOATING POINT UNIT
70
MXCSR
130
FUNCTIONAL UNIT
172
FUNCTIONAL UNIT
170
110
Register File
120
XMM0_Low
XMM0_High
XMM1_Low
XMM1_High
XMM2_Low
XMM7_High
ROM 100
Micro-code Handler
150
Micro-code Instruction
140

Figure 3

Figure 4


310
Decompose macroinstruction into 2 microinstructions
320
Issue two microinstructions in parallel
330
Generate Signal to Specify when SSE Instruction is Emulated
340
Determine if an Unmasked Exception Occured in Either Unit
Yes
350
Cancel Both Instructions and Invoke Handler
No
360
Update MXCSR Register based on Flags Generated in Both FP Units
370
Continue Processing

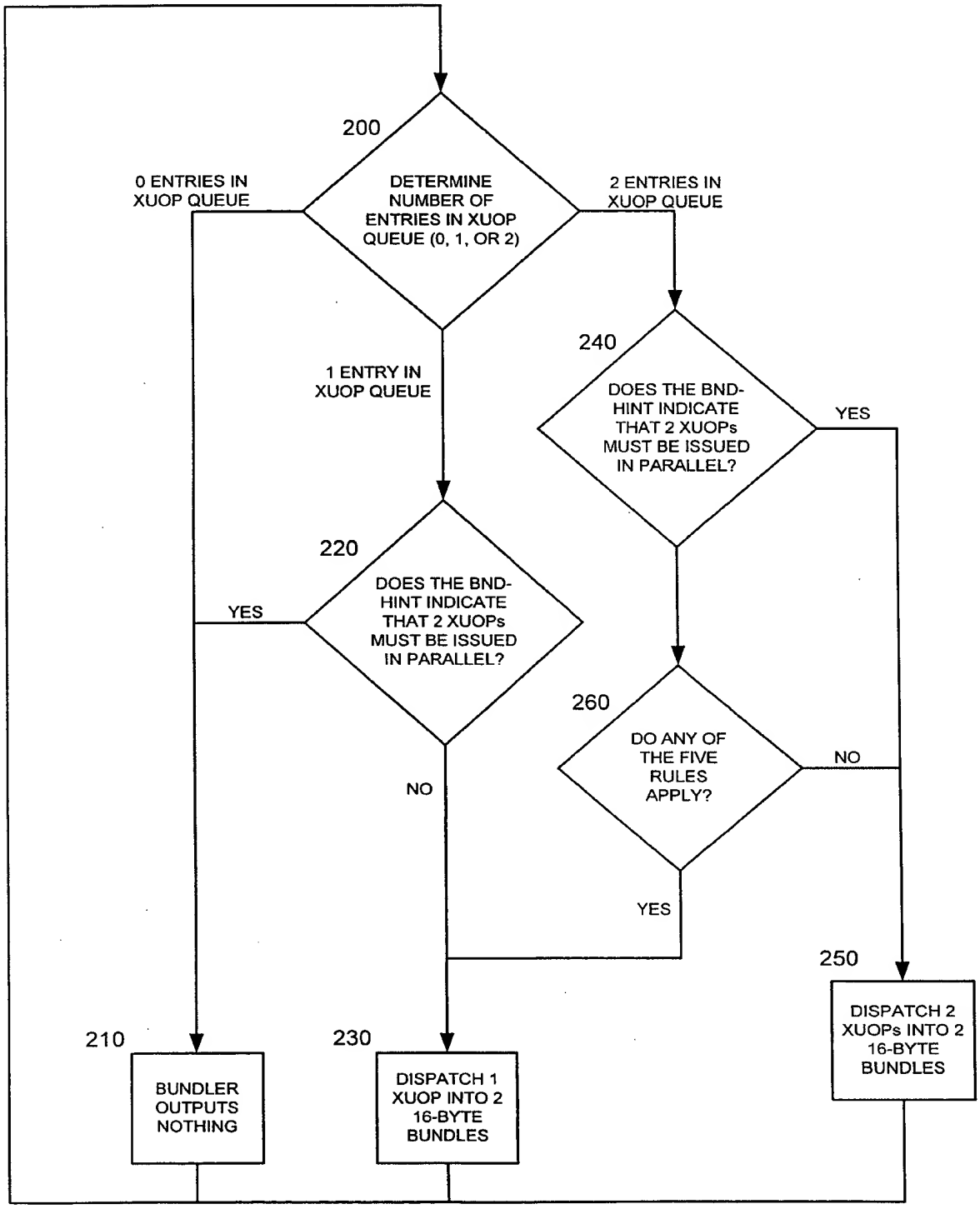

200
DETERMINE NUMBER OF ENTRIES IN XUOP QUEUE (0, 1, OR 2)
0 ENTRIES IN XUOP QUEUE
1 ENTRY IN XUOP QUEUE
2 ENTRIES IN XUOP QUEUE
220
DOES THE BND-HINT INDICATE THAT 2 XUOPs MUST BE ISSUED IN PARALLEL?
YES
NO
240
DOES THE BND-HINT INDICATE THAT 2 XUOPs MUST BE ISSUED IN PARALLEL?
YES
260
DO ANY OF THE FIVE RULES APPLY?
NO
YES
210
BUNDLER OUTPUTS NOTHING
230
DISPATCH 1 XUOP INTO 2 16-BYTE BUNDLES
250
DISPATCH 2 XUOPs INTO 2 16-BYTE BUNDLES

FIG. 5